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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/656,288	09/06/2000	Oscar R. Herrera E.	10001963-1	9450

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EXAMINER

TILLERY, RASHAWN N

ART UNIT	PAPER NUMBER
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2612

DATE MAILED: 12/18/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/656,288

Applicant(s)

HERRERA E., OSCAR R.

Examiner

Rashawn N Tillery

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 September 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3, 6 and 8-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Hynecek (US4831451).

Regarding claim 1, Hynecek discloses, in figures 1 and 4, a system for optically imaging, the system comprising:

an array of cells (12) for producing an electrical charge in response to photon stimulation;

a charge shift register (30) configured to receive the electrical charge produced by each cell in the array and to sequentially output the electrical charge of each cell;

at least two charge sensing nodes (54, 56) for accumulating charge readable as a voltage (the examiner notes that Applicant defines a charge sensing node on page 4, line 6 as "any device capable of receiving a charge from charge multiplexor 14 and holding the charge so that the charge may be read as a voltage."); and

a charge demultiplexor (32) configured to receive the output of the charge shift register and to selectively distribute the output to each of the at least two charge sensing nodes (the examiner notes that Applicant defines a demultiplexor on page 3,

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line 29 as "any device for receiving input from charge shift register 12 and selectively outputting to charge sensing nodes 16, 18." Hynecek's reset transistor area acts as a demultiplexor since it is capable of alternately activating the outputs of sense lines 50 and 52).

The examiner acknowledges the differences in the prior art and Applicant's invention as it is described in the specification; however, Applicant's claim language is currently written broadly enough where a broad interpretation of the prior art reference could read on it.

Regarding claim 3, Hynecek discloses, in figure 4, at least one output buffer (224) configured to receive the voltage of each of the at least two charge sensing nodes.

Regarding claim 6, Hynecek discloses, in figures 1 and 4, a method for producing a voltage signal segmented to represent an output of an array of cells that produce a cell electrical charge in response to photon stimulation, the method comprising:

receiving each of the cell electrical charges from the cells in a charge shift register (30);

sequentially outputting the cell electrical charges from the charge shift register to a charge demultiplexor (32);

the charge demultiplexor selectively distributing the sequential cell charges to one of at least two charge sensing nodes (54, 56); and

sequentially reading a voltage produced by the cell charges in at least one of the at least two charge sensing nodes (224).

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Regarding claim 8, Hynecek discloses the charge demultiplexor selectively distributing the sequential cell charges to one of at least two charge sensing nodes includes the charge demultiplexor distributing multiple cell charges to each of the at least charge sensing nodes (Hynecek teaches, in col. 2 lines 4-35, that an entire row of cells could be transferred).

Regarding claim 9, Hynecek discloses, in figures 1 and 4, producing a voltage signal segmented to represent an output of an array of cells that produce a cell electrical charge in response to photon stimulation, the method comprising:

a charge shift register configured to sequentially receive the charge from each cell (30);

at least two charge sensing nodes configured to accumulate charge and output a voltage signal (54, 56); and

a charge demultiplexer configured to sequentially distribute each charge from the charge shift register to one of the at least two charge sensing nodes (32).

Regarding claim 10, Hynecek discloses, in figure 4, at least one output buffer (224) configured to receive the voltage of each of the at least two charge sensing nodes.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 2, 5, 7 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hynecek.

Regarding claim 2, Hynecek discloses a horizontal scanner formed on-chip with a sensor array. Hynecek does not expressly disclose the array of cells includes a charge coupled device array. Hynecek reveals in the background of the invention (see col. 1, lines 11-22) that CCD devices are well known in the art. It would have been obvious to one of ordinary skill in the art to implement a CCD array since Hynecek teaches that CCD arrays are basic architectures well known in the art.

Regarding claims 5 and 12, Hynecek does not expressly disclose the use of an analog to digital converter. Official Notice is taken that it is well known in the camera art to utilize such teachings. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Hynecek's teachings by implementing an ADC since the use of ADCs provide for various advantages such as reduced manufacturing costs, high-speed readout and reduced noise.

Regarding claim 7, Hynecek discloses a horizontal scanner formed on-chip with a sensor array. Hynecek does not expressly disclose the charge demultiplexor selectively distributing the sequential cell charges to one of at least two charge sensing nodes includes the charge demultiplexor distributing one cell charge to each of the at least two charge sensing nodes. Hynecek reveals in the background of the invention that is well known in the art to individually address each cell in the array (see col. 1 lines 32-54). It would have been obvious to one of ordinary skill in the art to implement X-Y

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architecture since Hynecek teaches that CID arrays are basic architectures well known in the art.

2. Claims 4 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hynecek in view of Taniji (US5883667).

Regarding claim 4, Hynecek discloses a horizontal scanner formed on-chip with a sensor array. Hynecek does not expressly disclose an amplifier configured to amplify the voltage from the at least two charge sensing nodes. Taniji reveals, in figure 2, that it is well known to amplify a signal from an output circuit. It would have been obvious to one of ordinary skill in the art, since Hynecek teaches outputting the voltage from two charge sensing nodes, to implement Taniji's teachings of amplification. One would have been motivated to do so in an effort to amplify the analog signal before digitizing it.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following references teach related art: Wadsworth et al, Borg et al, Chen et al, Fossum et al, Ito, Urbanus et al, Nakawaga et al, Kamasz et al, Koizumi et al, Nakamura et al and Hynecek.


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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rashawn N Tillery whose telephone number is 703-305-0627. The examiner can normally be reached on 9AM-6:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wendy Garber can be reached on 703-305-4929. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4750.

RNT


WENDY R. GARBER
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